

# THE EDISONIAN

## THE THOMAS A. EDISON PAPERS WIN THE EUGENE S. FERGUSON PRIZE

The Papers of Thomas A. Edison received a special *Eugene S. Ferguson Prize* from the Society for the History of Technology at its annual meeting in November 2005. The Ferguson Prize recognizes outstanding and original reference works that will support future scholarship in the history of technology. This one-time retrospective award was given to the Edison Papers as a model work published since the founding of SHOT in 1958. The award citation, in part, reads:

*All told, the Edison Papers are an exemplary work of historical scholarship and editing. Provided with annotations that refer the reader to other pertinent sources in the Edison Collection at West Orange and elsewhere, they are the obligatory starting point for anyone interested in undertaking research on Thomas Edison, his many inventions and business enterprises.*

*Equally important, the Edison Papers ... in its print, microfilm, and website editions, provides a rich set of primary sources to which non-specialists can turn for lecture material, illustrations, and primary documents for classroom and other uses. To be sure, they shed a flood of light on America's most famous inventor, the inventions he patented, the businesses he engaged in, and the times in which he lived. ... The Papers of Thomas A. Edison constitute a milestone in the historiography of technology and a model of the craft of historical editing.*



Thomas A. Edison

## VISUAL THINKING, EDISON STYLE

The Ferguson Prize recognizes the tradition of scholarly excellence established by Eugene S. Ferguson (1916-2004), especially his pioneering studies on the importance of visual thinking in technology. Ferguson's many thought-provoking statements on this subject included the idea that "Pyramids, cathedrals and rockets exist not because of geometry, theory of structures, or thermodynamics, but because they were first a picture — literally a vision — in the minds of those who built them."

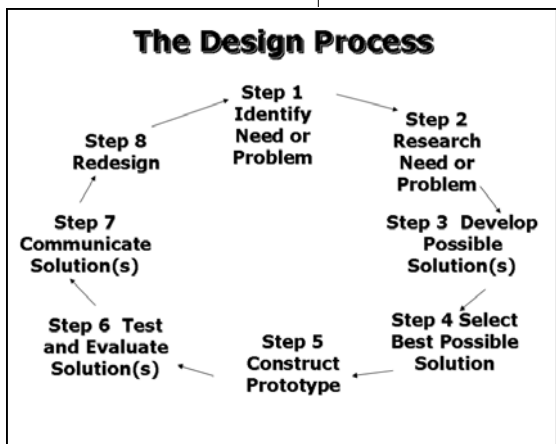
Hundreds of thousands of sketches left by Edison and his associates make an impressive record of such thinking, and their existence is no accident. At only twenty four years of age, in 1871 Edison wrote, "I have innumerable machines in my Mind now which I shall continue to illustrate & describe day by day when I have the spare time." He kept at it for sixty years more!

# DESIGN FOR LEARNING

The Edison Papers and the Center for Mathematics, Science and Computer Education (CMSCE) at Rutgers have developed an exciting introduction to team research through a series of professional development courses for teachers and design-challenges for students. In one instance, the challenge is to build a mechanical (“robotic”) arm that shoots

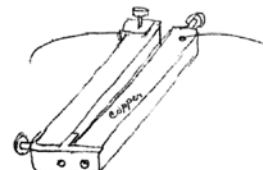
basketballs; in another, students create theater sets with parts that move. A third program explores different forms of energy for moving vehicles. Each program uses Edison’s wide-ranging repertoire of interests and his design journals as the starting point for a design challenge with cross-curriculum content in physical science, algebra, geometry and measurement, and data analysis.

The exercises also strengthen skills in problem-solving, creativity, and decision making. “The experience of making tests is a great way to prepare students for taking tests,” says Dawna Schultz of the CMSCE, who presents the programs via videoconferences. “The videoconference permits more than one school to participate simultaneously, and it is very Edisonian,” adds program co-developer, Theresa Collins of the Edison Papers. “This is a forward looking technology, yet reminiscent of the telecommunications revolution in which Edison was involved.”



Teachers who participated in the pilot programs typically remarked: “Good idea to show Edison’s notebooks to illustrate the lengthy process of design.” “Students were totally engaged in hands-on activity that promoted community involvement.” “The interaction between students/teachers helped build communication bridges that will be used to expand/cross the achievement gap in students.” “We would recommend this to anyone and would love to do it again!”

We test every metal against copper and allow it to gain a constant temperature before taking the final reading— we have concluded to use the copper clamp both for securing the wires and the bars together.<sup>5</sup>



(Above) Notebook Entry: Thermoelectricity, *The Papers of Thomas A. Edison*, vol.5, p 174.

Students were equally enthusiastic: “I like the creativity of the design challenge and the ability to communicate with students in other schools.” “I liked how we worked as a team and saw how everyone’s project worked.” “It would be cool if we could do a design challenge continuously all day.”

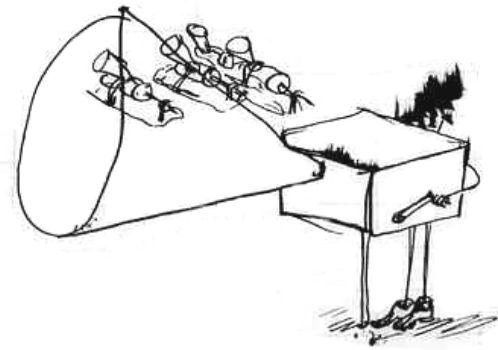
Further information can be found on the websites of the Edison Papers and the CMSCE. These programs were developed with support from the GE Foundation.

## GOING 3-D

Although Edison’s sketches indicate that he conceived of mechanical operations in three dimensions, they do not represent machines in three-dimensional perspective. Thanks to support from the GE Foundation, the Edison Papers now has a vibrant way to bridge the gap. Working with Martin Goldman of the Math and Science Learning Center at Rutgers, we used Edison’s patents to develop a hands-on exhibit of his process for the electromagnetic separation of iron ore. During 2005 the exhibit was demonstrated alongside historical artifacts and documentary resources at the New Jersey State Museum’s Super Science Family Festival, and at Sparta Mountain, where Edison built his ore separation plant during the 1890s.



## WHAT WAS HE THINKING?



In the waning weeks of 1877, Edison and his closest associates were working on his phonograph – the first machine to record and play back sound. While sketching the relevant components, Edison was also speculating about grandiose futures for recorded sound. He had it in mind to “apply the phonograph principle to make Dolls speak sing cry,” and, among other things, to “make toy music boxes & toy talking boxes.”

The item above stands out amid the notes and drawings. It looks much like an organ grinder, with four tiny phonographs superimposed, but Edison left no label or caption to explain it. “We don’t know if Edison was imagining phonographs as street organs, or if this is a doodle,” comments Lisa Gitelman of Catholic University, a visiting editor with the Edison Papers and fellow of the Center for Cultural Analysis at Rutgers. An expert in the history of new media, Gitelman adds, “What we have is one among many imagined futures for recorded sound. It is partially scratched out, and conjectural. When *Punch* magazine ran a similar cartoon (right) a few months later, it wasn’t copying Edison, but it was tapping into all of the same questions.”

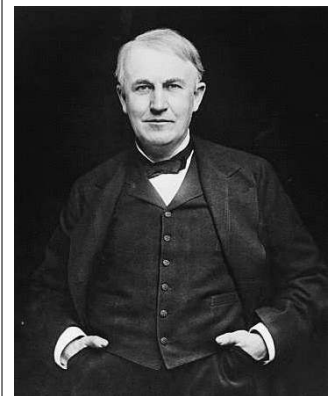


## WORTH WATCHING

- *Edison: The Invention of the Movies* (Kino, 2005) is a 4-disc collection of newly mastered, musically scored films of the Edison company. The collection contains interviews with Paul Israel, of the Edison Papers, and Charles Musser, Professor of Film and American Studies at Yale University, and longtime associate of the Edison Papers.
- Experts from the Edison Papers appear in two recent episodes of *Modern Marvels* on the History Channel. “Wiring America” features David Hochfelder speaking on the history of the telegraphy. Edison Papers director, Paul Israel, can be seen in “Edison Tech,” an episode that highlights Edison’s many inventions and their technological descendents.
- The new Rutgers Science Explorer, a mobile science laboratory, features Edisonian activities developed in conjunction with a grant from the GE Foundation. The activities include: “Be a Battery – From Volta to Edison to Ni-cads,” and “Parallel or Series, Mr. Edison?” Find out more at <http://sciencebus.rutgers.edu/>

## SUPPORT THE EDISON PAPERS

The Thomas A. Edison Papers depends on the ongoing support of many contributors including private and public foundations, corporations and individuals. Your tax-deductible contribution will help with a wide range of editorial, publication and outreach activities, ensuring that all sectors of society have access to and benefit from the work of the Edison Papers.



News from the Thomas A. Edison Papers

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## DID YOU KNOW. . .

You know how people say they have a “bug” in their computer? In Edison’s laboratory, “bug” was slang for “little faults and difficulties.” A British journalist once heard Edison had been up for two nights “discovering a bug in his phonograph.”

Years later, computer scientists joked when they actually found a moth inside an early computer. They saved it with a note that said, “First actual case of a bug being found.”

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## ABOUT THE EDISON PAPERS

The Thomas A. Edison Papers is a research center at Rutgers University, publishing and developing the documentary legacy of America’s most prolific inventor and innovator. This is accomplished through books, articles, media appearances, Internet services, community outreach and educational collaborations.